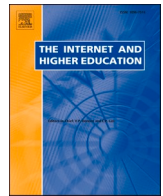




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# Modeling undergraduates' selection of course modality: A large sample, multi-discipline study

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## ABSTRACT

Scholarly understanding is limited with regard to what influences students' choice to take a particular course fully online or in-person. We surveyed 650 undergraduates at a public Canadian university who were enrolled in courses that were offered in both modalities during the same semester, for roughly the same tuition cost. The courses spanned a wide range of disciplines, from archaeology to computing science. Twenty-five variables were gauged, covering areas including students' personal circumstances, their competence in the language of instruction, previous experience with online courses, grade expectations, and psychological variables including their regulation of their time and study environment, work avoidance and social goal orientation. Two logistic regression models (of modality of enrolment and modality of preference) both had good fit to the data, each correctly classifying roughly 75% of cases using different variables. Implications for instructional design and enrolment management are discussed.

## 1. Introduction

In 2020 as the COVID-19 pandemic swept the globe, millions of postsecondary students and instructors found themselves forced, many for the first time, to mediate all of their interactions digitally. It was shocking because despite the diffusion of Internet technologies in everyday life and widespread availability of online course and program offerings for over a decade, the majority of postsecondary students and instructors had continued to learn and teach in person. While one can only speculate today about the long-term influences that the sudden, forced shift to digitally-mediated teaching and learning will have, our current circumstances make it urgent to understand why so many students had persisted in completing courses by traditional means when they had long had the option to do so online instead.

It has been asserted that students' course selections are "among the most defining in the success of their learning" (Zocco, 2009, p. 2). In recent years, undergraduates have had more choices to make than previous students – not only about *which* courses to take and when to take them, but also the modality (in-person or fully online) in which they experience them. In 2016, fully online courses accounted for 31.6% of all higher education enrollments in the United States, and 28% of all undergraduates took at least one fully online course (Seaman, Allen, & Seaman, 2018). In Canada, 76% of postsecondary institutions offered

some form of online learning as of 2019, and overall online enrolments had increased by 10% from the previous year (Johnson, 2019). Yet despite the scale at which students have been taking courses online, scholars do not have a very complete or cohesive understanding of what shapes students' choice of course modality. Many studies have been small in scale, or have tended to focus on a small subset of students' personal characteristics, beliefs or circumstances as explanatory factors, omitting other potentially contributing variables.

Through earlier research O'Neill & Sai, (O'Neill & Sai, 2014) we began to realize that students' choice of course modality is quite complex. Consider the hypothetical, but realistic case of a biology major who is taking a first-year English course as an elective to meet a breadth requirement. The student has a part-time job and a 40-min commute to campus. The courses required for her major will necessitate travel to campus for a minimum of two days per week for lectures. One of her biology courses also requires a lab, which is offered multiple times per week. One of the lab sections occurs on the same day as its associated lecture (potentially saving travel time), but conflicts with the in-person offering of the English course that is of greatest interest to her.

If the instructor for the English course has been recommended to the student by friends, and/or she feels that in-person presence will help her to maintain her enthusiasm for the course and keep up with the assignments, she may opt to commute to campus one additional day per

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week for the biology lab, so that she can attend the in-person offering of the English course. She may work fewer hours at her part-time job as a result. However, if she does not expect much learning benefit from the English instructor's lecture performance and/or feels that she is self-disciplined enough to keep up with the assignments in the English course on her own, she may instead opt to take the English course online in order to avoid traveling to campus one additional day per week. In this case she may be able to work more hours at her job. Although undergraduates make the complex decisions illustrated in this example millions of times per year, current scholarship does not fully represent this complexity.

Limited scholarly understanding of modality choice has important implications for both postsecondary students and institutions. For example, it may lead to institutions mandating a course modality that fails to meet students' needs, or students registering in a course modality that they do not believe suits them due primarily to logistics – potentially leading them to underachieve or drop a course, wasting their time and money as well as instructor time and institutional resources.

In the present research, we aimed to enrich scholarly understanding of undergraduate modality choice with one of the most comprehensive surveys conducted to date.

### 1.1. Related literature

While scholarly interest in modality choice is longstanding, many prior studies have been small in scale, have focused on a single discipline or program of study, and take as a foundational assumption that students' stated motivations for selecting a mode of study are essentially all that is important to this choice. "Convenience" and "flexibility" are often used as variables in these studies, but not defined or operationalized. Further, many studies neglect the possibility that latent psychological variables or contextual factors might also contribute to explaining modality choice.

For example in an early small-scale study, Willging and Johnson (2009) surveyed 10 students who had dropped out of an online Masters program in Human Resource Management offered at a public university in the midwestern United States. Their survey consisted of 9 questions. Though the main focus of the study was on students' reasons for dropping out of the program, the researchers also included one open-ended question asking students why they had initially chosen to enroll. Detailed analysis of these open-ended questions was not provided, but the authors state that students enrolled due to the flexibility of schedule, the convenience and effectiveness of taking online classes, good fit with their personal goals, for professional development, to obtain an advanced degree in the field, and also because of the strong reputation of the university.

Other studies of modality choice have been larger in scale, though they have not necessarily been more representative of multiple disciplines, or more sophisticated theoretically. For example, Braun (2008) surveyed 90 graduate students pursuing Masters degrees in Education at a small private institution in the United States. Forty students were enrolled in a fully online cohort program, while the remaining 50 were enrolled in a hybrid program that combined online study with intensive in-person meetings every other weekend. The survey instrument was comprised of 26 questions, one of which allowed respondents to select up to five possible reasons for enrolling in an online program. These reasons included flexibility, ability to work at home, curiosity about a new way of learning, enjoyment of online instruction and available financial support. Across the two modalities, the top three reported motivations for modality choice were the same: financial, flexibility, and ability to complete coursework at home. Interestingly, while respondents were asked to report how many online courses they had completed previously, these data were not used in the analysis of students' modality choice.

Brown (2012) examined survey responses solicited from 324 Education students (graduate and undergraduate) taught online by the same

instructor over a period of three years. The instrument was not provided, but appears to have consisted of selected-response questions only. Reportedly, between 33 and 44% of respondents each semester indicated that they chose the online course because they believed it would be less difficult. (This is an interesting result, since the author explains that both online and in-person students wrote the same examinations, and average grades in the online course were generally lower.) The author further states that between 22 and 26% of respondents each semester reported not having time to attend in-person classes, 13 to 18% found the online modality easier to balance with family commitments, 11 to 15% reported the need to minimize travel, and 5 to 6.5% wanted to try a new method of learning.

Kowalski, Dolph, and Young (2014) surveyed 91 students enrolled in a Masters degree program in Educational Administration at a private research university in the United States, whose program allowed them to freely select their mode of study for each of 9 required courses. Details on the survey instrument were not provided, but it appears to have consisted entirely of selected-response items. A central focus of the data analysis was four possible motives for selecting modality: cost, instructional preference, convenience and flexibility. Respondents rated each of these motives on a four-point Likert scale. Convenience and flexibility were found to be the dominant reported motivations for students who had taken or planned to take at least one online course.

Kuzma, Kuzma, and Thiews (2015) surveyed 290 students who were enrolled in upper-level courses in Business at a university in the United States about their experiences and perceptions of online versus in-person courses. It is unclear how many items their survey contained; but one selected-response survey item focused on students' reasons for registering in an online course. The five response categories, in order of popularity, were convenience, lack of availability of the in-person course, scheduling conflict with another course, perceived ease of the online course, and preference for the instructor. We note that this is the first study discussed here that asked specifically whether an in-person alternative was accessible to the student. Further, while most studies have ignored the possibility that the discipline on which a course focuses may influence students' choice of modality, this study made an important advance by asking students about the kinds of courses that they considered more difficult if taken online. A majority of students reported believing that courses involving a great amount of description or terminology could be more easily taken online, while courses involving a high level of theory or analysis would be the most difficult to take online.

Harris and Martin (2012) surveyed 644 students at a public university in the Western United States about modality choice. Their survey consisted of 16 selected-response items, including 14 items that invited students to select applicable influences on their choices. These items included convenience, travel time, time balance with work and family obligations, enjoyment of the campus environment and work with other students, and belief in the learning benefits of in-person presence. Convenience and flexibility were found to be the primary motivations for online students, while in-person students were more likely to report concerns about their learning.

Another group of studies is characterized both by larger sample sizes and a more sophisticated approach that recognizes there may be more to the phenomenon of modality choice than what students directly state about their motivations. For example, Bailey, Ifenthaler, Gosper, Kretschmar, and Ware (2015) surveyed 744 undergraduate Arts students at an Australian university about their choice of study mode between three options: in-person, open and online, and distance (which they defined as possibly including some in-person components). Their extensive survey was composed entirely of selected-response items which elicited self-report on many variables *besides* students' stated motivations to choose one modality over another, but which could plausibly influence this choice. Variables gauged through the survey included students' initial reasons to pursue postsecondary education, the cost of their studies, academic self-concept, travel logistics to

campus, technology skills, and importance to the student of “environment” factors such as access to academic support services, health and athletics services, student clubs and social life. The researchers chose to gauge this wide range of variables in order to examine whether they might influence students’ choice of study mode in ways that respondents were not explicitly aware of.

The researchers administered their survey to each student at two points in time to assess how their preferences for study mode and the influences on these preferences might change. Overall, the campus environment factor showed the largest influence on change of study mode preferences over time, indicating that in-person students felt aspects of the campus environment were of high importance, while online students found them of low importance.

A small number of studies have attempted to examine and model the relative influence of different variables on students’ modality of registration, including psychological variables whose influence students may not be explicitly aware of, and personal characteristics such as race and gender that may exert influence in systemic ways.

Artino (2010) surveyed 564 students at a military service academy in the United States who had completed an online course. The survey consisted of 59 Likert-type items mostly from previously-published instruments, designed to gauge psychological variables that were hypothesized to influence modality choice: motivational beliefs, achievement emotions, self-efficacy for online study, and satisfaction with the online course they recently completed. (We note that motivational beliefs, achievement emotions and self-efficacy are all theoretically-grounded psychological constructs, quite different from those of “convenience” or “flexibility” heavily relied on in other studies.) Finally, students were also asked whether in the future, they would prefer an online or in-person course for related material.

Despite its greater theoretical sophistication, Artino’s survey did not gauge logistical and contextual factors as many previous studies had done. We view this as an important limitation, since the researcher was therefore unable to compare the relative influence of logistical and psychological factors on students’ choice of modality. Despite this limitation, the author was able to construct a logistic regression model that correctly classified almost 68% of cases using three variables. While the study did not include data on students’ actual choice of modality in a future course, their expressed interest in enrolling online in the future was positively predicted by their satisfaction with the recently completed online course and their self-efficacy for online study, and negatively predicted by the strength of their expectation that the course content would be interesting, important and useful.

Wladis, Hachey, and Conway (2015) similarly used logistic regression to attempt to build predictive models of modality of registration in STEM subjects. Their study stands out for three reasons. First, they focus on the representation of students of different genders, ethnicities, socioeconomic status, English language competence and immigration status in the online course modality. Second, their analysis drew upon a large nationally-representative dataset including approximately 27,800 undergraduates called the U.S. National Postsecondary Student Aid Study (NPSAS), assembled by the U.S. Department of Education. Third, rather than asking students about their *motivations* to register in a particular modality, they examined only possible systemic influences on students’ modality of registration. They found that across the United States, black and Hispanic STEM majors were significantly underrepresented online (with black and Hispanic males particularly underrepresented), while white and female students were overrepresented.

This review suggests that the literature on modality choice remains fragmentary, with scholars working at a variety of scales and in disparate disciplines. Researchers have attempted to explain modality choice using a wide array of variables. Most studies have simply asked students about their motivations to select a course modality, using selected-response items that target subjective constructs such as “convenience” or “flexibility.” These studies assume both that the options provided on the survey are exhaustive, and that students’ explicit motivations tell a

reasonably complete story about modality choice. Disappointingly many of the published reports on these studies do not include the survey instruments used.

Other studies have been larger in scale and taken a more theoretically-grounded approach, using established psychological constructs or institutional data to test hypotheses about how psychological or systemic factors may influence the complex choices that students are making. However, no study of which we are aware has gauged a wide array of personal, psychological and contextual variables so as to evaluate their *relative* influence on students’ *actual* choice of course modality.

## 2. Methods

### 2.1. Research context

Our study took place at an established public university in Canada with an undergraduate population of approximately 23,284 full-time-equivalent students. The university offers a wide range of undergraduate programs in the Arts, Sciences, Applied Sciences, Social Sciences, Business and Education. Situated in a culturally diverse area which attracts new immigrants from around the world, international students (those on a student visa) make up roughly 20% of the student body at the undergraduate level. According to a recent survey, approximately 12% of all students (whether local or international) speak no English in the home. Most students are residents of the local area, though very few live on campus.

While the primary mode of instruction at the institution under study is in-person, there is also a decades-old practice of offering fully online, asynchronous courses, developed with the help of an experienced team of dedicated staff working in a central unit of the university. This unit provides centralized technical support for online course delivery, and also trains graduate students who grade assignments and answer student questions. While the total annual enrolment of the fully online courses is capped at 10% of the overall enrolment of the institution,<sup>1</sup> many courses are offered in both modalities, often in the same semesters. Regardless of the modality in which students complete a course, it bears the same course number, carries the same credit, and has approximately the same tuition cost.<sup>2</sup> Furthermore, the same rules apply to courses in both modalities regarding the time of the semester when a course can be dropped and tuition refunded.

### 2.2. Data collection

Data were collected between September 2017 and April 2018 by means of a 54-item online survey. Invitations to participate were made with the permission and support of all relevant course instructors. Responses were solicited from undergraduate courses across several disciplines, including Archaeology, Computing Science, Criminology, Economics, Education, English, Kinesiology and Statistics. Only students who were enrolled in courses that were offered *both* online and in-person in the *same* semester were recruited for participation, since only these students had made a recent choice of modality that was relevant to the study. Each student was paid \$5 (either in cash or as an online gift card) to complete the survey.

### 2.3. Instrument design

We aimed to gauge, in a more comprehensive way than prior studies, several different categories of variables suggested to influence modality choice, so that we could examine the relative influence of these variables

<sup>1</sup> This may be a unique policy of the institution under study. The authors have been unable to comprehensively compare policies at peer institutions.

<sup>2</sup> Online courses have a small additional materials fee.

on students' actual choices. In particular, we aimed to gauge both logistical and circumstantial variables such as those targeted by Bailey et al. (2015), and potentially influential psychological variables as Artino (2010) had done, then model their relative influence on students' actual choice of course modality.

Question formats included simple yes/no, numeric answer, and Likert-type items. All Likert-type items had response scales ranging from 1 to 7, labeled from "Disagree Strongly" to "Agree Strongly." Items covered the following areas (see Appendix):

### 2.3.1. Knowledge of alternate modality

Respondents were asked whether they were aware that the course was simultaneously offered in the modality other than the one they registered in, and whether they had attempted to enroll in the other modality first.

### 2.3.2. Personal characteristics

These items solicited participants' age, sex and presence of a physical disability that could impair commuting (yes/no).

### 2.3.3. Circumstances

Convenience and need for flexibility have been documented as important influences on modality choice in prior studies. We attempted to operationalize these by asking students to report their commute time to campus in minutes, hours of paid work per week, and the extent of their responsibility at home to care for others (such as children or elderly parents).

### 2.3.4. Grade satisfaction

Zocco (2009) suggested that students take a risk-management approach to course selection, considering (among other things) the potential grade they may earn in a course. Two Likert-type items measured whether participants were satisfied with their grades overall, and if they felt the need to raise their GPA.

### 2.3.5. Language proficiency

Instructors sometimes assume that students with weaker oral skills in the language of instruction will favour online courses, which tend to be more print-based and less likely to involve oral discussions or presentations. Two Likert-type items assessed students' self-perception of their oral and written comprehension of English (the language of instruction) and self-perception of ability to write well in English.

### 2.3.6. Course interest and need

Artino (2010) found that students' interest in taking a course online was negatively influenced by the perceived importance and interest value of the content. On our survey, four Likert-type questions assessed the participant's perception of the course, with such items as "I am interested in the subject of this course." Several questions also attempted to capture how the specific course fit into the student's degree requirements – namely, whether the course was an elective, required, prerequisite, etc.

### 2.3.7. Goal orientation questionnaire subscales

As Bailey et al. (2015) documented, students' modality choices may be motivated by social goals. The Goal Orientation Questionnaire (GOQ) (Nesbit et al., 2009) attempts to capture the relationship between achievement goals and other motivational variables. For the present survey, two subscales of the GOQ were included: The Social Goal subscale consists of 3 Likert-like items such as "In this course I prefer working with others."

Brown's (2012) study had indicated that students may take an online course due to the belief that it will be less difficult. We included the GOQ Work Avoidance subscale (4 items) to provide an opportunity to gauge the influence that the desire to avoid work might have on modality choice. A sample item for the Work Avoidance scale is "In this course I

feel unhappy when a task takes too much time." Reliability figures for each included GOQ subscale are provided in Table 1.

Further Likert-type items on our survey assessed the extent to which the student expected the in-person version of the course to be harder, and the extent to which they expected to earn higher grades in the mode they had enrolled in.

### 2.3.8. MSLQ subscales

Both Artino and Stephens (2009) and Bol and Garner (2011) stressed the additional demands that fully online courses place on students' ability to self-regulate in their studies. The Motivated Strategies for Learning Questionnaire is designed to assess college students' motivational orientations and their use of different learning strategies to self-regulate in the context of a college course (Pintrich, Smith, Garcia, & McKeachie, 1991). Ample research has confirmed the instrument's reliability and validity (Credé & Phillips, 2011; Pintrich, Smith, Garcia, & McKeachie, 1993; Taylor, 2012). The entire MSLQ was too lengthy for our research context, so four subscales were chosen that prior literature suggested would show the greatest differences between modes of enrolment:

- An eight-item subscale focused on students' management of their time and study environment
- A four-item subscale focused on students' regulation of their own effort in learning
- A four-item subscale focused on students' inclination to seek help
- A three-item subscale focused on students' propensity for learning with peers

The first two subscales gauge self-regulation, and were included because online courses generally require greater self-regulation on students' part. Since O'Neill and Sai (2014) had reported that students chose an in-person class to gain easier access to help from the professor and teaching assistants, we also included the help-seeking scale to see whether a tendency toward help-seeking would influence modality choice more broadly. Finally, since online courses do not typically include collaborative work, we suspected that students would be more likely to select this modality if they had a lower propensity for peer learning. This is why the peer learning scale was included.

Reliability figures for each included MSLQ subscale are provided in Table 1.

### 2.3.9. Experience with and expectations of online courses

More than one study reviewed above suggested that more experience with online courses could predict future online enrolment. Thus, one item on our survey captured how many postsecondary-level courses the student had previously taken online. If the student had taken at least one online course, two further Likert-type questions gauged the respondent's self-efficacy for fully online learning and enjoyment of it.

### 2.3.10. Open-ended comments

A final open-ended question invited the participant to share further thoughts about why they chose to take the course in the particular modality. Due to limitations of space, analysis of responses to this

**Table 1**  
Reliabilities for GOQ and MSLQ subscales.

Sub-scale	Cronbach's $\alpha$	Number of variables
GOQ		
Social Goal	0.72	3
Work Avoidance	0.83	4
MSLQ		
Help Seeking	0.62	3
Effort Regulation	0.71	4
Peer Learning	0.71	3
Time and Study Environment	0.77	7



question are presented elsewhere.

### 3. Data analysis and results

We first examined overall differences between students registered in the two modalities, then conducted logistic regression analyses aimed at modeling the modality of students' registration and the modality of their preference using other variables from their survey responses.

#### 3.1. Characteristics of the sample

Respondents to our survey came primarily from large first-year courses, though a small number of third and fourth year courses were also involved in the research. Table 2 presents courses and response rates for Spring 2018.

In both modalities the mean age of respondents was approximately 21 years, and the standard deviations were comparable between the two groups (4.8 years for in-person, 5 years for online). A majority of respondents in both modalities were female: approximately 68% in the in-person group, and 71% in the online group. This is inconsistent with the makeup of the overall undergraduate population at the institution, where females currently represent 54% of the overall headcount; however it is consistent with previous research on survey nonresponse bias (Porter & Whitcomb, 2004).

#### 3.2. Differences between registration modality groups

Comparisons were made between the two modality groups using either  $z$  tests of proportions,  $t$ -tests, or Mann–Whitney  $U$  tests depending on the nature of the response type and the distribution of responses on each variable. For all test types, the threshold for significance was set at 0.05.

A summary of findings for the categorical variables is provided in Table 3. While both modalities were being offered for each participating course, students registered in-person were significantly less likely to be aware that they had a choice of modality than online students were ( $p < .0001$ ). This imbalance seems to indicate that despite how frequently online courses are offered by the institution under study, students generally perceived in-person as the “default.” Consistent with this interpretation, online students were significantly more likely to have attempted enrolment in in-person first than in-person students were to have attempted enrolment online first ( $p < .0001$ ). There was no significant difference between the two modalities with regard to the proportion of female students registered.

A summary of findings for the numeric and Likert-type variables is provided in Table 4. To control inflation of type I error associated with multiple comparisons, a Holm-Bonferroni adjustment was used ( $\alpha = 0.05$ ), which indicated eight variables with significant differences.

**Table 2**  
Response rates for classes participating in Spring 2018.

Course	In-person			Online			Totals		
	E	n	%	E	n	%	E	n	%
Archaeology 11X	363	0	0	55	11	20	418	11	3
Archaeology 12X	280	4	1	56	33	59	336	37	11
Computing 1XX	167	17	10	72	16	22	239	33	14
Criminology 11X	281	2	1	48	9	19	329	11	3
Criminology 12X	144	25	17	0	0	0	144	25	17
Criminology 31X	120	35	29	45	9	20	165	44	27
Criminology 32X	29	6	21	53	16	30	82	22	27
Economics 1XX	385	79	21	65	10	15	450	89	20
Education 1XX	50	18	36	89	20	22	139	38	27
Education 4XX	68	19	28	90	22	24	158	41	26
English 1XX	143	8	6	42	11	26	185	19	10

(E = total enrolment, n = number of respondents, % = percentage of enrolled students responding).

**Table 3**  
Sample proportions for categorical variables.

	Proportion in-person	Proportion online	Z	p	CI	
Knew course was offered in other mode	0.58	0.87	8.35	0.0001	−0.36	−0.23
Attempted other mode	0.11	0.29	5.8	0.0001	−0.24	−0.12
Required Course	0.61	0.47	3.55	0.0004	0.06	0.21
Elective Course	0.33	0.44	2.96	0.0031	−0.19	−0.04
Pre-Requisite Course	0.15	0.10	1.93	0.0531	0.00	0.10
WQB Course	0.36	0.39	0.85	0.3935	−0.11	0.04
Sex - Female Students	0.68	0.71	0.93	0.3544	−0.10	0.04

These are highlighted in the first eight rows of Table 4.

While the popular image of online education is that it caters to students who do not have convenient access to in-person courses, or who require greater flexibility in their schedules for paid work or caregiving responsibilities (Powell & Keen, 2006), we found no difference between the modality groups with regard to their commute times to campus, the number of paid work hours they reported doing each week, their age, or their responsibility to care for others at home. (However, note that there was not a great deal of variance in the responses on these variables.)

In contrast with some other studies, we found no significant differences overall between online and in-person registrants with regard to the importance they placed on the course they were responding about. Counter to our expectations, we also found no overall differences with regard to students' self-reported oral and written English competence, indicators of their self-regulation (MSLQ Effort Regulation and Time and Study Environment subscales), or their satisfaction with their grades.

However, our analysis did identify several significant differences between students enrolled in the in-person and online modalities. Students who were registered online had taken 1.4 times more online courses in the past on average ( $p < .001$ ), reported greater enjoyment of online courses ( $d = 0.55$ ,  $p < .001$ ) and a stronger belief that they were good at them ( $d = 0.43$ ,  $p < .001$ ), and expressed a stronger belief that the in-person class would have been more difficult ( $d = 0.31$ ,  $p < .001$ ). On the other hand, students who were registered in-person had a greater reported tendency to seek help when they were struggling (MSLQ Help-Seeking subscale) ( $d = 0.58$ ,  $p < .001$ ), a greater interest in learning together with peers (MSLQ Peer Learning subscale) ( $d = 0.49$ ,  $p < .001$ ), expected a higher grade in their chosen modality ( $d = 0.48$ ,  $p < .001$ ), and were more strongly committed to Social Goals ( $d = 0.47$ ,  $p < .001$ ).

#### 3.3. Modeling modality of registration

A logistic regression analysis was conducted to model the relative importance of the many variables gauged on our survey in shaping students' modality of registration.

Prior to conducting the analysis, it was necessary to address the issue of missing data. While most variables in our dataset had some amount of missing data, six potential contributors to modality choice had percentages of missing values above 5%, as shown in Table 5. Not all respondents chose to respond to all questions on our survey, and in addition, some questions were added to the survey between the first and second administrations. For example, the question regarding disabilities that might impair commuting was added to the survey in Spring 2018, and the commute time question was added for online students in this administration as well (previously only in-person students were asked

**Table 4**Means, standard deviations, means difference (D), *p*-values and effect size (Cohen's *d*) statistics for all numeric or Likert-type variables, sorted by effect size.

	In-person		Online		D	<i>p</i>	<i>d</i>
	Mean	SD	Mean	SD			
MSLQ Help Seeking	3.91	1.26	3.17	1.28	0.74	0.001	0.58
Enjoy online courses	3.92	1.71	4.84	1.62	-0.92	0.001	0.55
MSLQ Peer Learning	3.69	1.34	3.04	1.31	0.65	0.001	0.49
Online courses taken	1.01	1.73	2.44	3.76	-1.43	0.001	0.48
Expects higher grade in chosen modality	4.82	1.46	4.09	1.58	0.73	0.001	0.48
GOQ Social Goal	4.51	1.18	3.96	1.14	0.54	0.001	0.47
Good at online courses	4.13	1.66	4.82	1.51	-0.69	0.001	0.43
Expected F2F harder	3.37	1.54	3.86	1.60	-0.49	0.001	0.31
Commute time (min)	43.73	24.39	54.54	39.59	-10.81	0.01	0.31
Course importance	5.49	1.21	5.15	1.54	0.34	0.02	0.24
Expectation of help	5.90	1.11	5.63	1.30	0.27	0.01	0.22
MSLQ Time and Study Environment	4.69	0.94	4.87	0.97	-0.17	0.02	0.18
Course interest	5.65	1.23	5.43	1.36	0.22	0.06	0.17
GOQ Work Avoidance	3.39	1.30	3.59	1.27	-0.20	0.02	0.16
Work hours	10.88	10.44	12.42	12.05	-1.53	0.20	0.14
Age	21.08	4.76	21.56	5.08	-0.48	0.01	0.10
MSLQ Effort Regulation	5.14	1.01	5.23	0.99	-0.09	0.26	0.09
Caregiving at home	3.90	1.95	3.75	1.97	0.15	0.30	0.08
Satisfaction with grades	4.16	1.52	4.23	1.53	-0.07	0.61	0.04
Need to raise GPA	5.89	1.18	5.86	1.18	0.03	0.66	0.03
Oral/spoken English Competence	6.43	0.96	6.41	0.99	0.02	0.80	0.02
Expects good grade	5.71	1.11	5.69	1.13	0.02	0.95	0.02
Written English competence	6.45	0.89	6.43	0.86	0.01	0.67	0.01

Only variables highlighted in grey showed significant differences after Holm-Bonferroni adjustment.

about commute time). As a result, responses to these questions are either partly or entirely missing for the 2017 responses.

To examine patterns of missingness, an SPSS MVA was run with a *t*-test to see whether missingness was related to any of the other variables, with  $\alpha = 0.5$  and tests done only for variables with at least 5% of data missing. These *t*-tests showed a systematic relationship between all 6 variables in Table 5 and the dependent variable (in-person or online), therefore the missingness could be classified as MNAR (Missing Not at

Random) (Tabachnick & Fidell, 2007). These 6 variables were therefore dropped from the regression analysis.

After exclusion, a Little's MCAR test was run with the remaining variables to see whether they were missing completely at random. A statistically non-significant result ( $p = .623$ ,  $\alpha = 0.05$ ) indicated no statistically significant deviation from randomness. Fifty-two cases with missing values on continuous variables were imputed using the EM algorithm through SPSS MVA. There were no missing data for categorical

**Table 5**  
Missing data for six variables.

Variable	Count missing	Percentage missing
Disability	280	43.1
Commute Time	164	25.2
Good at Online	148	22.8
Enjoy Online	145	22.3
Expected In-person Harder	43	6.6
Expected Higher Grade	42	6.5

variables.

An analysis of expected frequencies was conducted for all pairs of discrete variables (Tabachnick & Fidell, 2007), which led to collapsing the categories for the variable “Sex” into Female/Not Female. The Box-Tidell procedure was used to ensure that all continuous independent variables were linearly related to the logit of the dependent variable (Tabachnick & Fidell, 2007). The SPSS collinearity statistics function was used to calculate VIFs for all variables, with none of them presenting VIF above 2.607. This is taken as a good indication of absence of multicollinearity. Finally, an initial analysis showed that there were 7 cases for which standardized residuals were greater than 3 standard deviations. These seven outliers were excluded from the model.

After these preparations, a direct logistic regression was performed using IBM SPSS Statistics v24, to discern the effects of 25 variables on the likelihood that participants would enroll in the online offering of a course. A test of the full model with all 25 variables against a constant-only model was statistically significant,  $\chi^2(25, N = 643) = 264.855, p < .0001$ , indicating that this set of variables reliably distinguished between online and in-person registrants. The model correctly classified 76.4% of cases (cut off point set to 0.50). An inferential goodness-of-fit test was run (Hosmer-Lemeshow), which yielded a  $\chi^2(8, N = 643)$  of 10.943, and was not significant ( $p = 0.205$ ), suggesting that the model was a good fit to the data.

Table 6 shows regression coefficients, Wald statistics, odds ratios ( $Exp(B)$ ) and 95% confidence intervals for odds ratios for each of the 25 variables included in this model. Odds ratios greater than 1 reflect an increase in the odds of the student being enrolled in the online version of

the class with a one-unit increase in the relevant variable. Odds ratios less than 1 reflect a decrease in the odds of enrolling online, with a one-unit decrease in the relevant variable (Tabachnick & Fidell, 2007).

We will discuss the significant contributors to the model in order from largest to smallest odds ratios. As shown in Table 6, the odds of eventually enrolling in an online course were almost 5 times greater ( $Exp(B) = 4.88$ ) for students who were unable to obtain the modality they initially attempted to enroll in. This finding is consistent with other data above, which suggest that in-person is considered the “default” modality by students at the institution under study. The odds of a student registering online were also 4 times greater ( $Exp(B) = 4.129$ ) if they knew that the online offering existed – though this knowledge could be a consequence of inability to register in-person, rather than a cause.

For each additional unit in the MSLQ Time and Study Environment scale score (an indicator of self-regulation), the odds of a student registering online increased by 93% ( $Exp(B) = 1.934$ ). Thus, while it seems that many students registered online after attempting to take a course in-person, they appear to have done so with some awareness of their personal ability for self-regulation in their studies. With regard to the role of a course in the student’s program, students were 83% more likely to register online if the course was an elective for their program ( $Exp(B) = 1.863$ ). They were 50% more likely to register online with each online course they previously completed ( $Exp(B) = 1.509$ ), and 35% more likely to register online with each one-point increase in their GOQ Work Avoidance score ( $Exp(B) = 1.357$ ). In line with our overall comparison of students in the two modes, students were 25% less likely to register online for every one-point increase in their MSLQ Help-Seeking score ( $Exp(B) = 0.751$ ).

### 3.4. Modeling modality of preference

In the model of *registration* modality discussed above, the two variables that contributed most strongly were whether a student had first attempted to register in-person, and whether they knew the course was being offered in both modalities. Upon reflection, it seemed likely that these two variables might not so much be *predictors* of online enrolment as *consequences* of other factors beyond the students’ control, such as

**Table 6**  
Logistic regression model for modality of registration ( $df = 1$ ).

	B	S.E.	Wald	p	Exp(B)	95% C.I. for EXP(B)	
						Lower	Upper
Age	−0.032	0.021	2.443	0.118	0.968	0.930	1.008
Sex (Female)	0.145	0.227	0.411	0.522	1.157	0.741	1.804
Work Hours	0.008	0.009	0.651	0.420	1.008	0.989	1.026
Caregiving at home	0.022	0.053	0.172	0.679	1.022	0.922	1.133
Satisfaction with grades	−0.044	0.082	0.288	0.592	0.957	0.814	1.124
Need to raise GPA	0.050	0.092	0.288	0.592	1.051	0.877	1.259
Required course (Yes)	−0.167	0.285	0.343	0.558	0.846	0.484	1.479
WQB (Yes)	0.165	0.223	0.547	0.460	1.179	0.762	1.826
Elective (Yes)	0.622	0.274	5.170	0.023	1.863	1.090	3.186
Prerequisite (Yes)	−0.324	0.341	0.904	0.342	0.723	0.370	1.411
Knew course was offered in other mode	1.418	0.252	31.685	0.001	4.129	2.520	6.764
Attempted other mode	1.585	0.278	32.513	0.001	4.881	2.830	8.417
Written English competence	−0.233	0.158	2.185	0.139	0.792	0.582	1.079
Course interest	0.093	0.124	0.566	0.452	1.098	0.861	1.399
Course importance	−0.135	0.113	1.430	0.232	0.874	0.701	1.090
Expects good grade	−0.030	0.111	0.072	0.789	0.971	0.780	1.208
Oral/Spoken English competence	0.304	0.150	4.121	0.042	1.355	1.011	1.816
Expectation of help	−0.250	0.105	5.731	0.017	0.779	0.634	0.956
Online courses taken	0.411	0.059	48.696	0.001	1.509	1.344	1.694
GOQ Work Avoidance	0.305	0.101	9.175	0.002	1.357	1.114	1.654
GOQ Social Goal	−0.257	0.097	6.988	0.008	0.773	0.639	0.936
MSLQ Help Seeking	−0.286	0.101	8.010	0.005	0.751	0.616	0.916
MSLQ Effort Regulation	−0.062	0.150	0.169	0.681	0.940	0.700	1.262
MSLQ Time and Study Environment	0.660	0.162	16.664	0.001	1.934	1.409	2.655
MSLQ Peer Learning	−0.069	0.098	0.492	0.483	0.934	0.771	1.131
Constant	−5.014	1.559	10.348	0.001	0.007		

Coefficients in log-odds (B), Standard Error, Wald chi-square, Significance, Odds Ratios (Exp(B)) for the predictors and Confidence Intervals.



their position in the institution's registration priority scheme. Many students who enrolled online did so only after finding that they could not register in the in-person offering – due to it already being full, for example. We therefore decided to conduct a second regression analysis to model students' preferred modalities.

For this model, all respondents who reported having attempted to register first in a different modality were removed from the analysis. Similarly, all respondents who were not aware that both modalities were offered in the same semester were removed. Subjected to these restrictions, the data set was reduced to 344 entries, including 158 in-person participants and 186 online participants. Missing data analysis was performed again, and the same six variables were found to have missing data percentages above 5% (Disability, Commute Time, Good at Online, Enjoy Online, Expected In-Person Harder, Expected Higher Grade). An SPSS MVA was also run again, and showed a systematic relation between these 6 variables and the dependent variables, so these 6 variables were dropped from the model. Little's MCAR test was run with the remaining variables and a statistically non-significant result ( $p = .973$ ,  $\alpha = 0.05$ ) supported data imputation. SPSS MVA was used to impute missing data.

Since the sample size had been reduced significantly, the number of variables to be included in the model also had to be adjusted. Considering Stoltzfus' (2011) recommendation that the least common outcome defines the maximum number of predictors, and since the smaller respondent group (in-person) had 158 entries, a maximum of 15 variables could be included in the model. Eight variables were therefore removed. The variables chosen for removal were the 8 variables with the least significant means differences in the previous  $t$ -tests or Mann-Whitney tests. These were: Age, Expects Good Grade, Written Language Competence, Spoken Language Competence, Need to Raise or Maintain GPA, Grade Satisfaction, Responsibility to Care for Others and MSLQ Effort Regulation.

SPSS CROSSTABS showed that all remaining variables had expected frequencies greater than one, and none was less than 5. Three outliers were found where the standardized residual was greater than 3 standard deviations, and these were removed from the sample. A Box-Tidell procedure was applied in SPSS with a Bonferroni correction, and all continuous independent variables were found to be linearly related to the logit of the dependent variable. Finally, the SPSS Collinearity statistics function showed that no variables presented VIF superior to 2.554, which is a good indicator of the absence of multicollinearity.

A logistic regression was performed using IBM SPSS Statistics v24 to identify the effects of 15 variables on the likelihood that participants would prefer the online course. A test of the model with all 15 variables against a constant-only model was statistically significant, a  $\chi^2$  (15,  $N =$

341) = 114.067,  $p = .001$ , indicating this set of variables reliably distinguished between students with a preference for online and in-person courses. The model correctly classified 74.5% of cases (cut off point set to 0.50). An inferential goodness-of-fit test was run (Hosmer-Lemeshow), which yielded a  $\chi^2$  (8,  $N = 341$ ) of 9.414 and was not significant ( $p = .309$ ), suggesting that the model had good fit to the data.

Table 7 shows regression coefficients ( $B$ ) in log-odds, Standard Error, Wald chi-square statistics, degrees of freedom,  $p$ -value, Odds Ratios ( $Exp(B)$ ) and Confidence Intervals for each of the 15 variables. Categorical variables were coded as Yes = 1, No = 0, and Sex was coded as Female = 1, Not Female = 0.

Five variables were statistically significant contributors ( $\alpha = 0.05$ ): Course importance ( $p = .007$ ), Previous Online Courses ( $p = .001$ ), GOQ Work Avoidance ( $p = .012$ ), MSLQ Help Seeking ( $p = .001$ ) and MSLQ Time and Study Environment ( $p = .016$ ). We discuss these in order of the magnitude of odds ratios. Three of the significant contributors increased the odds of online enrolment. For each additional unit increase in the MSLQ Time and Study Environment scale score, the odds of preferring online enrolment increased by 54.4% ( $Exp(B) = 1.543$ ). For each additional course previously taken online by the student, the odds of preferring online enrolment increased by 50% ( $Exp(B) = 1.491$ ). For each additional unit in the GOQ Work Avoidance scale, the odds of preferring online enrolment increased by 41% ( $Exp(B) = 1.416$ ).

Two variables decreased the odds of preferring online enrolment. For each one-unit increase in the MSLQ Help Seeking scale score, the odds of preferring online enrolment decreased by almost 35% ( $Exp(B) = 0.648$ ). For every one-unit increase in the Course Importance response, the odds of preferring online enrolment decreased by 34% ( $Exp(B) = 0.66$ ).

#### 4. Discussion

Despite the increasing proportion of undergraduates who have been enrolling in online courses over the past decade, the fully online experience has remained the exception rather than the norm, and what shapes students' choice of modality for a particular course remains incompletely understood. Our study involved several advances over prior research on modality choice, including a large number of respondents, a broader range of disciplines than have been included in previous research, and a larger number of potentially explanatory variables. By collecting data only from students in courses that were offered in both modalities in the same semester, our study was also able to address an actual choice that each student had made, rather than hypothetical or future choices, as other studies have done. Finally, due to policies in place at the institution under study, our participants' choice of course modality was unaffected by differences in course drop/add

**Table 7**  
Logistic regression model for modality of preference ( $df = 1$ ).

	$B$	S.E.	Wald	$p$	$Exp(B)$	95% C.I. for $Exp(B)$	
						Lower	Upper
Sex - Female Students	-0.261	0.302	0.746	0.388	0.770	0.426	1.393
Workhours	0.003	0.012	0.056	0.813	1.003	0.980	1.026
Required Course	-0.749	0.385	3.794	0.051	0.473	0.222	1.005
WQB Course	0.104	0.298	0.122	0.726	1.110	0.619	1.990
Elective Course	0.511	0.351	2.120	0.145	1.666	0.838	3.313
Pre-Requisite Course	0.120	0.509	0.056	0.813	1.128	0.416	3.056
Interest in course	0.175	0.155	1.283	0.257	1.191	0.880	1.613
Course importance	-0.415	0.153	7.346	0.007	0.660	0.489	0.891
Expects help	-0.146	0.131	1.246	0.264	0.864	0.669	1.117
Previous online courses	0.399	0.076	27.766	0.001	1.491	1.285	1.729
GOQ - Work Avoidance	0.348	0.139	6.268	0.012	1.416	1.078	1.859
GOQ - Social Goal	-0.153	0.132	1.334	0.248	0.858	0.662	1.112
MSLQ - Help Seeking	-0.434	0.132	10.895	0.001	0.648	0.501	0.838
MSLQ - Time/Study	0.433	0.179	5.854	0.016	1.543	1.086	2.192
MSLQ - Peer Learning	0.127	0.130	0.958	0.328	1.135	0.881	1.463
Constant	0.161	1.351	0.014	0.905	1.175		

Coefficients in log-odds ( $B$ ), Standard Error, Wald chi-square, Significance, Odds Ratios ( $Exp(B)$ ) for the predictors and Confidence Intervals.

policies or tuition refunds, and relatively unaffected by differences in tuition cost, which were small.

Some of our findings were consistent with our expectations – for instance, that in-person students had significantly stronger social goal orientations than online students did, and a stronger inclination to seek help when they were struggling. Other findings ran counter to our expectations – for example, that self-reported competence in oral and receptive English did not appear to significantly influence modality choice, that online students did not have longer commute times to campus on average than face-to-face students did, and that online and in-person students did not differ significantly in the number of hours of paid work they reported doing each week. There was also a somewhat ironic twist: we found that while online registrants expected the in-person offering of the course to be harder, in-person registrants expressed stronger expectations of a high grade.

Two logistic regressions were conducted to evaluate the relative influence of different variables on modality choice. One attempted to model modality of registration, and one that attempted to model modality of preference. Both models had good fit to the data and correctly classified approximately 75% of cases. In our model of modality of registration, the variables that contributed most strongly were logistical ones, such as whether the student knew that both modalities were being offered, and whether they had attempted to register in the other modality first. Psychological variables relating to self-regulation, work avoidance or inclination to seek help contributed relatively less value to the model where actual modality of registration was concerned. However, when we examined only students who got their first choice of modality, our model of modality preference achieved similar fit to the data using a majority of psychological variables. Prior experience with online courses made both preference for and actual registration in the online offering more likely.

Limited scholarly understanding of undergraduates' modality choice is problematic because the views of faculty and administrators may not acknowledge the complexity of the decisions students are making. Since fully asynchronous online courses provide maximum flexibility for both students and instructors, they may seem ideal from an administrative perspective. However, not all students are necessarily well suited to such courses, and the contribution of the MSLQ Time and Study Environment and Help Seeking variables to our logistic regression analyses suggests that students themselves are aware of this. For optimal learning, students' choice of course modality should be completely free, and should be informed by their personal knowledge of the conditions for learning that suit them best; but evidently this was not the state of affairs for many students participating in our study. Disappointingly, a substantial proportion of respondents did not get their first choice of modality, due to limited space in classes.

In the present moment, when millions of traditional in-person students have suddenly been forced to take all of their courses online due to the COVID-19 pandemic, our study has an additional layer of implications. Since prior experience with online courses increased the odds of both online enrolment and preference for the online modality, it is possible that demand for online courses will increase after the pandemic has passed. Meanwhile however, faculty who are teaching their courses online for the first time would do well to provide students with some of the elements that have traditionally drawn a majority of students to in-person courses. These include regular (perhaps optional) synchronous meetings that will help students to organize their study time and direct their efforts, and convenient access to knowledgeable help and support (through virtual office hours, for example). The social goals that traditional students aim to serve through their coursework should also not be neglected.

While it is currently uncertain when and on what terms undergraduate students and their instructors will be able to return to in-person classrooms, our research provides some insight into what traditional undergraduate students will be hoping for in their courses in the meantime, and what types of experiences might be prioritized when

they do return to campus.

## 5. Limitations

Our data collection and analysis involved a number of limitations that should be borne in mind. First, our data were collected at an institution with a fairly traditional undergraduate student body. Our findings may not generalize to institutions serving different clientele. As we have shown, most of our respondents were in their 20s, did not work, and did not have responsibility to care for others at home. Most also commuted to campus. Second, while the institution we studied has offered online courses for decades, they remain a minority of the courses offered, with in-person courses generally perceived as the default option. Third, there is clearly bias in our sample with regard to representation of the sexes. Finally, some potentially important variables had to be excluded from our regression models due to a high volume of missing data.

## 6. Future research

We hope that future research will be able to address the limitations in the present study. In addition, we hope that future studies will be able to look more systematically at the role that the discipline in which a course is offered may play in shaping students' modality preferences. Intuitively it seems likely that students would find online courses more appealing in some disciplines (and research has hinted at this), but no study we are aware of has examined this possibility with a wide range of disciplines.

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## Appendix A. Modality Choice Survey

This survey is designed to explore the reasons why students choose to take a particular course online or on campus. It should take about 15 min to complete, and you will be paid \$5 for your time.

In which course did you receive the survey invitation? (Please DO NOT answer the survey if you are not enrolled in one of these courses.) - drop down selection.

- How many years old will you be on December 31 of this year? (numeric answer)
- What is your sex? (check one)
  - Female
  - Male
  - Transgender
  - Other
  - Prefer not to say
- Approximately how many hours per week do you work a paid job? (numeric answer)

### 1. Your responsibility to care for others at home

Answers range from 1 (Disagree Strongly) to 7 (Agree Strongly).

I have responsibility at home to care for others (e.g. children, siblings, parents and/or grandparents).

### 2. Your satisfaction with your grades

Answers range from 1 (Disagree Strongly) to 7 (Agree Strongly)

- I feel satisfied with my grades overall

- I feel the need to raise my GPA

### 3. Course attributes and personal characteristics

- For you, is this course (check all that apply)
  - Required for your major/minor/certificate
  - Meeting a W/Q/B requirement
  - An elective
  - A pre-requisite for another course you need
- If you had taken this course on campus, how many minutes would it take (approximately) for you to get to class from home, or wherever you normally leave from? (time in minutes). (For In-person students, the question would instead ask “How many minutes does it take (approximately) for you to get to this class from home, or wherever you normally leave from? (time in minutes)”

Do you have a physical disability that makes it difficult for you to travel to or around campus? (Y/N)

- Did you know that this course was also offered in-person this semester? (Y/N)
- Did you attempt to register in the in-person version of this course? (Y/N)

### 4. Interest, importance and language

Answers range from 1 (Disagree Strongly) to 7 (Agree Strongly)

- I can read and write well in the language that this course is taught in
- I am interested in the subject of this course
- The material in this course is important for me to learn
- I expect to earn a good grade in this course
- The language this course is taught in is one that I can understand well orally (spoken)
- I expect to be able to access the help I need to succeed in this course from the professor, Tutor-Markers and fellow students

### 5. Time and effort committed to this course

*[Questions from this section represent the Social-approach Goals (SAG) and the Workavoidance.*

*Goals (WAV) subscales from the Goal Orientation Questionnaire (GOQ) instrument.*

*(Nesbit et al., 2009). GOQ question numbers are presented in brackets below for reference. The questions are presented grouped by subscale, however in the original survey, questions were de-identified and scrambled.]*

Answers range from 1 (Disagree Strongly) to 7 (Agree Strongly).

- Social-approach Goals
  - In this course I enjoy helping others. [GOQ-SAG-05]
  - In this course I prefer working with others. [GOQ-SAG-10]
  - In this course I am happy to be at the same level as my friends. [GOQ-SAG-07]
- Work-avoidance Goals
  - In this course I feel annoyed when I am required to make an effort. [GOQ-WAV-01]
  - In this course I avoid doing more work than is necessary. [GOQ-WAV-16]
  - In this course I feel unhappy when a task takes too much time. [GOQ-WAV-17]
  - In this course my goal is to get by with the least amount of work. [GOQ-WAV-22]

### 6. How you study in this course

*[Questions from this section represent subscales from the Motivated*

*Strategies for Learning.*

*Questionnaire (Pintrich et al., 1991). MSLQ question numbers are presented in brackets.*

*The letter “R” indicates reversed questions. The questions are presented grouped by subscale, however in the original survey, questions were de-identified and scrambled.]*

Answers range from 1 (Disagree Strongly) to 7 (Agree Strongly).

- Time and Study Environment
  - I usually study in a place where I can concentrate on my course work. [MSLQ5-35]
  - I make good use of my study time for this course. [MSLQ5-43]
  - I find it hard to stick to a study schedule. [MSLQ5-52R]
  - I have a regular place set aside for studying. [MSLQ5-65]
  - I make sure I keep up with the weekly readings and assignments for this course. [MSLQ5-70]
  - I attend class regularly. [MSLQ5-73]
  - I often find that I don’t spend very much time on this course because of other activities. [MSLQ5-77R]
  - I rarely find time to review my notes or readings before an exam. [MSLQ5-80R]
- Effort Regulation
  - I often feel so lazy or bored when I study for this class that I quit before I finish what I planned to do. [MSLQ5-37R]
  - I work hard to do well in this class even if I don’t like what we are doing [MSLQ5-48]
  - When course work is difficult, I give up or only study the easy parts. [MSLQ5-60R]
  - Even when course materials are dull and uninteresting, I manage to keep working until I finish. [MSLQ5-74]
- Peer Learning
  - When studying for this course, I often try to explain the material to a classmate or a friend. [MSLQ5-34]
  - I try to work with other students from this class to complete the course assignments. [MSLQ5-45]
  - When studying for this course, I often set aside time to discuss the course material with a group of students from the class. [MSLQ5-50]
- Help Seeking
  - Even if I have trouble learning the material in this class, I try to do the work on my own, without help from anyone [MSLQ5-40R]
  - I ask the instructor to clarify concepts I don’t understand well. [MSLQ5-58]
  - When I can’t understand the material in this course, I ask another student in this class for help [MSLQ5-68]
  - I try to identify students in this class whom I can ask for help if necessary. [MSLQ5-75]

### 7. Please rate the following statements

Answers range from 1 (Disagree Strongly) to 7 (Agree Strongly).

- I seem to be good at online courses
- I enjoy online courses
- Compared to the fully online version of this course, I expected the in-person version of this course to be harder
- Compared to the in-person version of this course, I expected to earn a higher grade in the online version. (For in-person students, this question was phrased “Compared to the fully online version of this course, I expected to earn a higher grade in the in-person version.”)

### 8. Other questions

How many fully online courses have you taken in the past, at the college or university level? (numeric answer).

Would you like to say anything else about why you chose to take this

course on campus? (open ended question).

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